



CCS Deployment Drivers and Incentives

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AEP CCS Validation Facility

1,300 MWe Mountaineer Plant, New Haven, WV

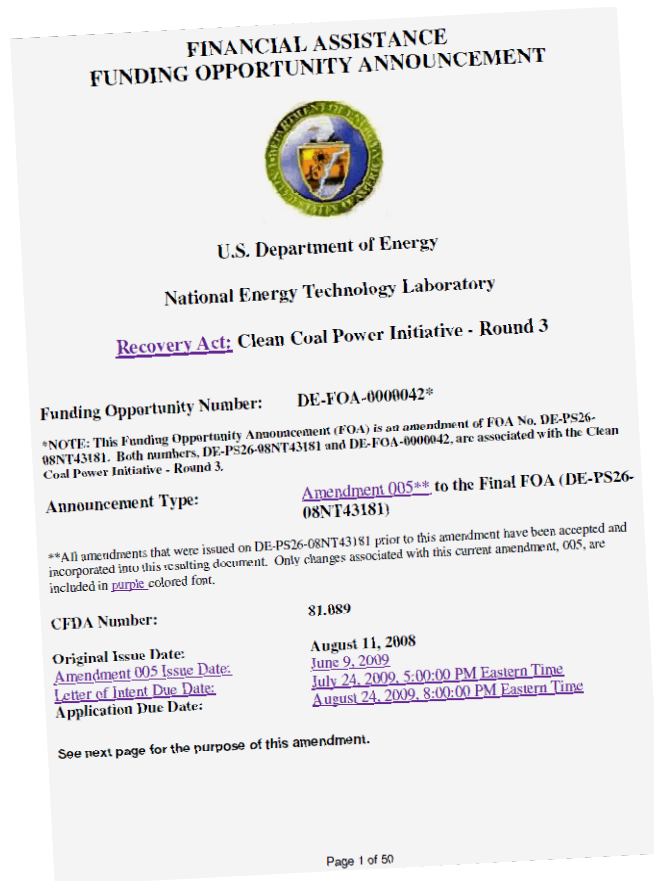


- **Scale:** 20 MWe slipstream
 - ~1.5% of power plant flue gas
- **Cost:** >\$100M
 - Funding by AEP, Alstom, RWE, & EPRI
- **Capture:** Alstom Chilled Ammonia Process
 - Ammonium Carbonate/Bicarbonate Reaction
 - >85% CO₂ capture rate
- **Sequestration:** Deep saline formation storage
 - ~100,000 tons CO₂ per year
 - ~1.5 miles below the plant surface
- **First CO₂ Capture:** September 1, 2009
- **First CO₂ Storage:** October 1, 2009
- **Planned operation:** 1 to 5 years



AEP CCS Commercialization Project

1,300 MWe Mountaineer Plant, New Haven, WV



- **Scale:** Full commercial demonstration
 - 235 MWe Slipstream
- **Cost:** ~\$668M
- **Funding:** CCPI Round III Selection
 - DOE awarded 50% cost share, up to \$334M
 - Cooperative agreement signed in January, 2010
- **Capture:** Alstom Chilled Ammonia Process
 - ~90% CO₂ capture rate
- **Sequestration:** Deep saline formation storage
 - ~1,500,000 tons CO₂ per year
 - ~1.5 miles below the surface
 - Pipeline system with off-site wellheads
- **Geologic Experts Advisory Group**
 - Battelle, Schlumberger, CONSOL, MIT, Univ. of Texas, Ohio State, WVU, LLNL, WV Geo. Survey, OH Geo. Survey, & WV DOE
- **Planned Operation:** Startup in second half of 2015



CCS Incentives

- **Public private partnerships needed**
 - Grants
 - Loan Guarantees
 - Bonus Allowances
 - Tax incentives
- **Regulatory implications for rate recovery**
 - Caps
 - Technology risks
 - Lack of climate legislation
- **Storage barriers**
 - Pore space ownership
 - Long term liability
 - Lack of large saline storage projects



Thank You